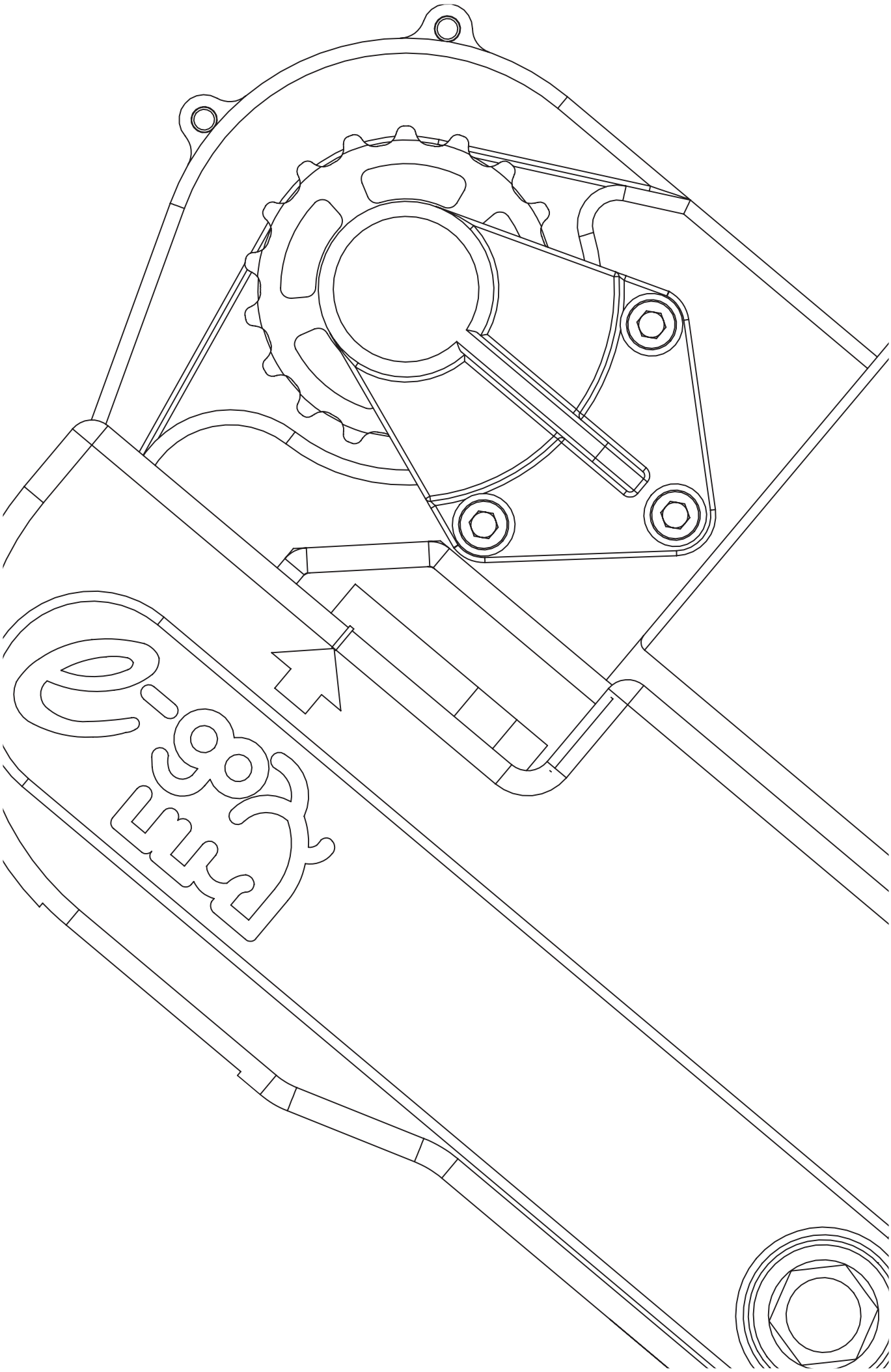
elektro-technik

REMOTE CARAVAN MOVER

Installation guide and user information

ego 0509 (rev:2) – UK version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Introduction

The ***e-go*** caravan mover system is designed to make your caravanning as easy as possible by taking away the strain of manoeuvring your caravan.

The ***e-go*** utilises two powerful 12V motors that drive traction rollers against your caravan's tyres to control the movement of the van using a handheld remote control that sends the commands to a central control unit hidden away inside. The power is drawn from your leisure battery.

It is very important that you read this manual thoroughly to familiarise yourself with the installation procedure and requirements BEFORE proceeding with installation.

Throughout this manual you will see the following symbols used:

This symbol is used to draw attention to important safety information. Please ensure you read and understand these notes.

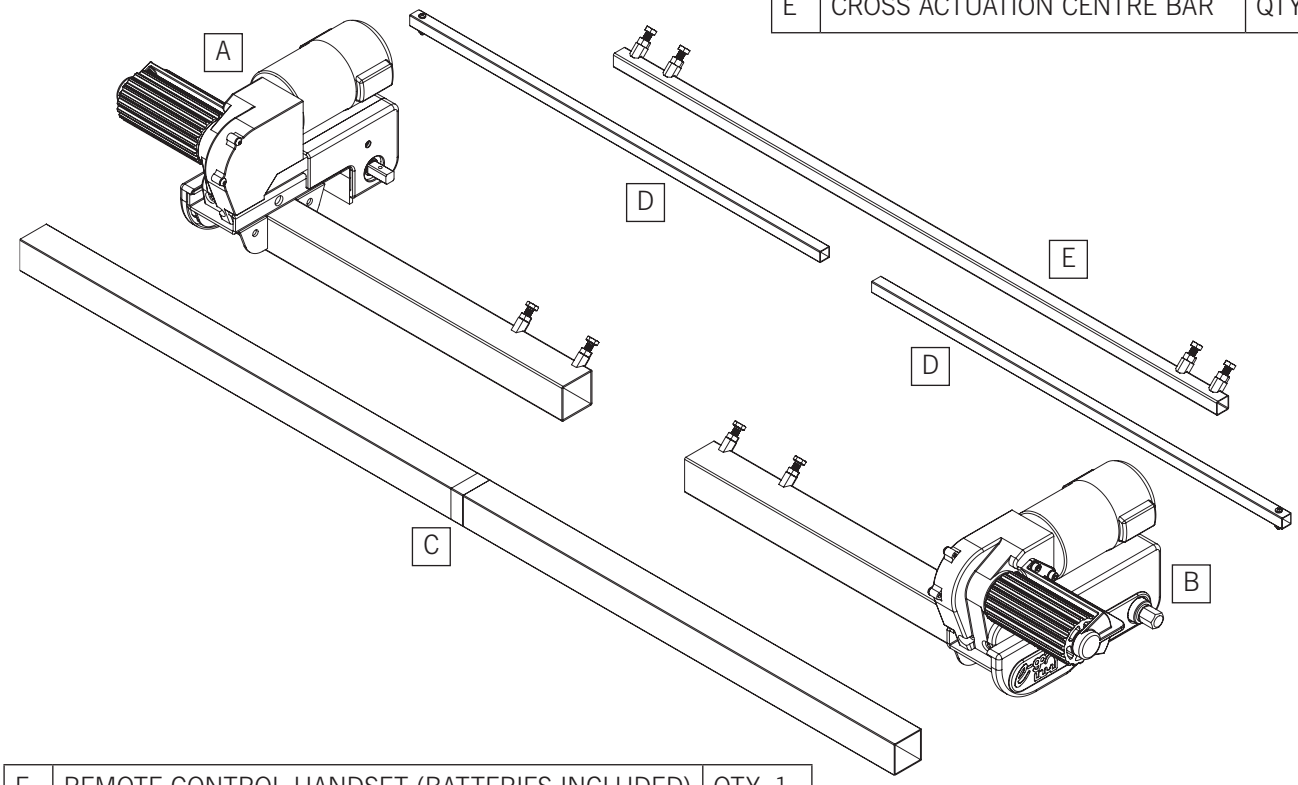
This symbol is used to highlight tips and suggestions that can help make the installation process easier.

Keep this manual in a safe, accessible place for future reference.

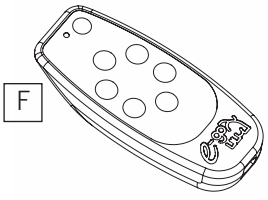
Parts List

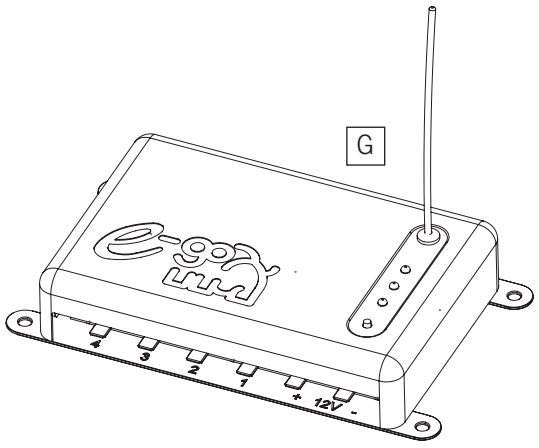
Main Components

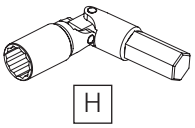
A	MOTOR UNIT A	QTY: 1
B	MOTOR UNIT B	QTY: 1
C	CROSS BAR	QTY: 1
D	CROSS ACTUATION INSERT BAR	QTY: 2
E	CROSS ACTUATION CENTRE BAR	QTY: 1

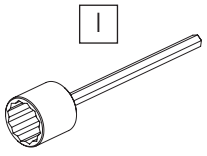


F	REMOTE CONTROL HANDSET (BATTERIES INCLUDED)	QTY: 1
G	CONTROL UNIT	QTY: 1
H	DRILL ATTACHMENT	QTY: 1
I	ENGAGEMENT ADAPTER	QTY: 1









Parts List

Associated Components

1a	CHASSIS CLAMP BOLT (M10 x 40)	QTY: 8
1b	CHASSIS CLAMP NYLOCK NUT (M10)	QTY: 8
1c	CHASSIS CLAMP WASHER (10MM)	QTY: 8
2	CHASSIS STOP BLOCK	QTY: 4
3	RED - POSITIVE MOTOR CABLE (5 METRES)	QTY: 2
4	BLACK - NEGATIVE MOTOR CABLE (5 METRES)	QTY: 2
5	CABLE TRUNKING (4.2 METRES)	QTY: 1
6	RED - POSITIVE BATTERY CABLE (2.5 METRES)	QTY: 1
7	BLACK - NEGATIVE BATTERY CABLE (1.6 METRES)	QTY: 1
8	CABLE POLARITY AND NUMBER MARKERS	QTY: 6
9a	P-CLIP SCREW (M4 x 15)	QTY: 20
9b	BATTERY / ISOLATOR TERMINAL CONNECTOR (8MM)	QTY: 4
9c	BATTERY / ISOLATOR TERMINAL CONNECTOR (6MM)	QTY: 2
9d	SPADE CONNECTOR	QTY: 6
10	POWER ISOLATOR SWITCH	QTY: 1
11a	LOWER L- SHAPE CHASSIS CLAMP PLATE	QTY: 2
11b	CHASSIS U-PLATE	QTY: 2
11c	UPPER CHASSIS CLAMP PLATE	QTY: 2
12	CABLE TIE (LARGE)	QTY: 4
13	CABLE TIE (SMALL)	QTY: 10
14a	P-CLIP (LARGE)	QTY: 10
14b	P-CLIP (SMALL)	QTY: 10
15	SPACER GAUGE (20 x 20 x 70MM)	QTY: 2
16	‘AAA’ 1.5V BATTERY FOR REMOTE CONTROL HANDSET (NOT SHOWN)	QTY: 3

Safety Guidelines

The installation of the caravan mover requires a competent level of DIY skills.

If you are in any doubt about your abilities to install the caravan mover yourself, please ask your local dealer about the option of professional installation.

As most of the work involved is conducted underneath your caravan, you must ensure that the caravan is supported securely, on a hard, level surface, using suitable axle stands and ramps.

Working underneath any vehicle, that is not supported securely, can cause damage to the caravan or surrounding area and also cause serious injury. Again, if you are in any doubt regarding the safety of working underneath your caravan, please seek professional advice or contact your local dealer about professional installation.

Apply the caravan's handbrake and chock the wheels (if appropriate).

Keep your work area well lit, tidy and free of obstruction.

Ensure there are no potentially hazardous materials in the vicinity such as flammable liquids or combustible materials.

Keep children and animals away from the area.

Keep all tools out of reach of children.

Ensure the caravan chassis is clean and free of dirt and debris.

Store the remote control handset in a safe place that children cannot access.

Technical Specifications

OPERATIONAL VOLTAGE	12 VOLT
RECOMMENDED BATTERY RATING	12 VOLT - 110Ah
AVERAGE CURRENT CONSUMPTION	20AMP
MAXIMUM CURRENT CONSUMPTION	120AMP
WEIGHT	29KG
SAFE WORKING LOAD	1800KG
MINIMUM WIDTH OF CARAVAN	1800MM
MAXIMUM WIDTH OF CARAVAN	2500MM
MAXIMUM TYRE WIDTH	205MM
e-go – TESTED POTENTIAL TO POWER 1250KG CARAVAN UP 1:4 GRADIENT – DRY – HARD SURFACE	

Fitting Guidelines

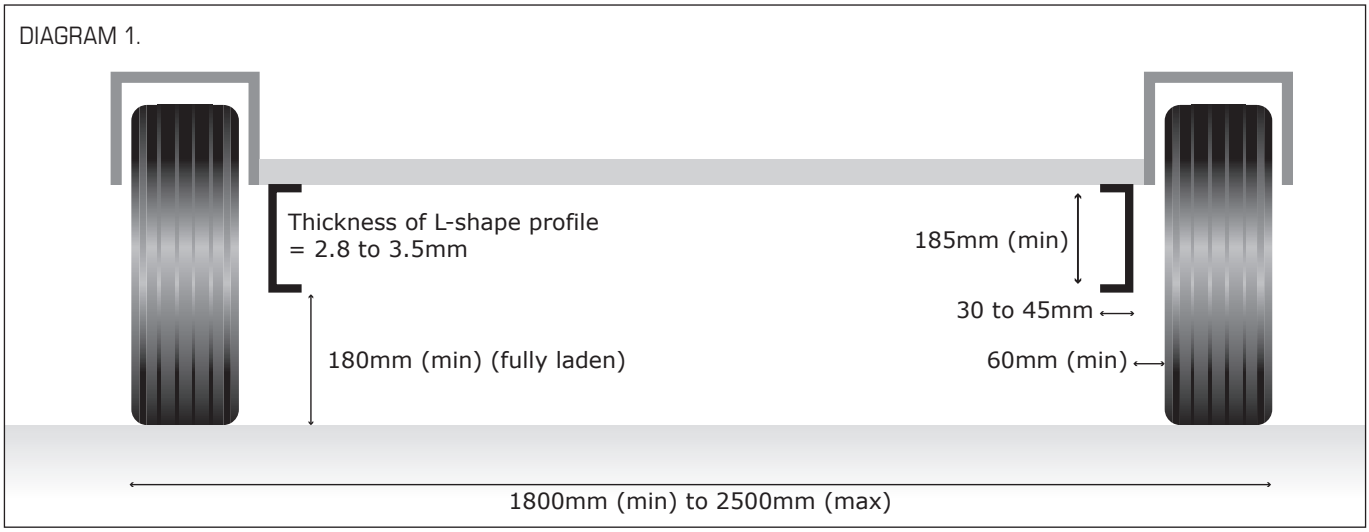
Before proceeding with installation please check the contents are complete compared to the Parts List (see Page 2-3). If any parts are missing or damaged please report this to your dealer.

The chassis clamps provided are suitable for fitment onto most standard caravan chassis that have an L-shape profile. Please refer to the Diagram 1. for reference on dimensions and clearances BEFORE you proceed any further with installation.

If your chassis has different dimensions to those shown in Diagram 1. then various chassis clamp adapters are available to suit the majority of UK and Continental caravans. Please contact your dealer for further details of adapters that will be suitable for your application.

If you are fitting the mover system yourself, it is advisable that the installation is conducted by two people, as the mover will need to be raised up to the bottom of the caravan's chassis before the clamps can be installed.

DIAGRAM 1.



Tools Required

Cross-head (PH2) screwdriver
Power drill
25mm drill bit
14mm, 17mm socket/spanners x 2
Crimping tool
Cable stripper
Utility knife
Torque wrench
Cable cutters

Mechanical Component Installation

In this section we will detail the fitting of the following mechanical components (ref Main Components on page 2 & Associated Components on page 3):

Both motor assemblies (A & B)
The main central cross bar (C)
The 3-piece cross actuation assembly (D & E)
The chassis clamp assemblies: upper chassis plates (11c), Lower L-shape plates (11a), U-shape plates (11b), chassis stop blocks (2), chassis clamp bolts, nylock nuts and washers (1a, b & c).

SAFETY FIRST! Please refer to the Safety Guidelines prior to performing any work underneath the caravan.

You will need to determine whether the motors are to be fitted in front of the axle (the motors closest to the 'A'-frame/ hitch bracket or if the motors will be fitted behind the axle).

Where possible the optimum installation will be achieved by fitting the motors in front of the axle, as this gives marginally better weight distribution. However, upon inspection, if you find that there is an obstruction that prevents this location then please proceed with the alternate fitting.

First, slide each of the motor assemblies (A & B) onto either end of the cross bar (C). Lay these underneath the caravan at approximately the correct position corresponding to the wheels. Adjust each motor assembly so that the rollers are approximately centralised in relation to the tyres tread. Hand tighten the four bolts that secure the motor assemblies to the cross bar (C).

You are now ready to clamp the motor assemblies and cross bar to the caravan's chassis. Prepare for this by placing a complete set of chassis clamps at either side; this will include the upper chassis plates (11c), Lower L-shape plates (11a), U-shape plates (11b), chassis clamp bolts (1a), washers (1b), nylock nuts (1c) and chassis stop blocks (2).

You now need to raise the assembly up to the underside of the caravan chassis. This operation will require another pair of hands and also some supports as necessary. First, raise one side of the assembly up to the chassis and fit the chassis clamp components together as shown in Diagram 2. Only loosely tighten the bolts as final positioning needs to be done prior to fully tightening the clamps.

Once you have loosely assembled one side the procedure should be repeated for the opposite side.

Once both clamp assemblies have been loosely fitted, the motors can be positioned correctly.

First, the overall width of both motors and cross bar should be adjusted. Please refer to Diagram 3. which details the positioning and clearances of each motor assembly in relation to the caravan's wheels. There should be no less than 10mm at point 3a.

Once the width has been adjusted, the four fixing bolts that secure the cross bar to the motor assemblies can be fully tightened to approx. 12Nm (9ft lbs).

The whole assembly now needs to be clamped to the chassis so that both rollers are 20mm away from the caravan's tyres when the rollers are DISENGAGED. Please refer to Diagram 4. for reference. Two 20mm spacer gauges are provided so that the assembly can be slid along the chassis with the spacers held by friction between the rollers and the tyres.

Check that the motors are pre-assembled in the fully disengaged position (refer to Diagram 4).

Once both rollers are pressing against the spacer gauges, two of the chassis stop blocks (2) should be fitted. Fit the stop blocks tight against the chassis clamps towards the front of the caravan. Fully tighten the nuts on the stop blocks which will 'pinch' into the chassis. You now have a fixed marker for the chassis clamps' position in relation to the tyres.

Now proceed to fully tighten both clamp assemblies to a torque setting of 55Nm (40ft lbs). The two remaining chassis stop blocks (2) can be fitted tightly against the clamp assemblies towards the rear of the caravan.

A final check of the position should be performed to ensure that the disengaged rollers are both exactly 20mm away from the surface of the tyres and that the mover's gearboxes are conforming to the permissible clearances detailed in Diagram 3.

DIAGRAM 2.

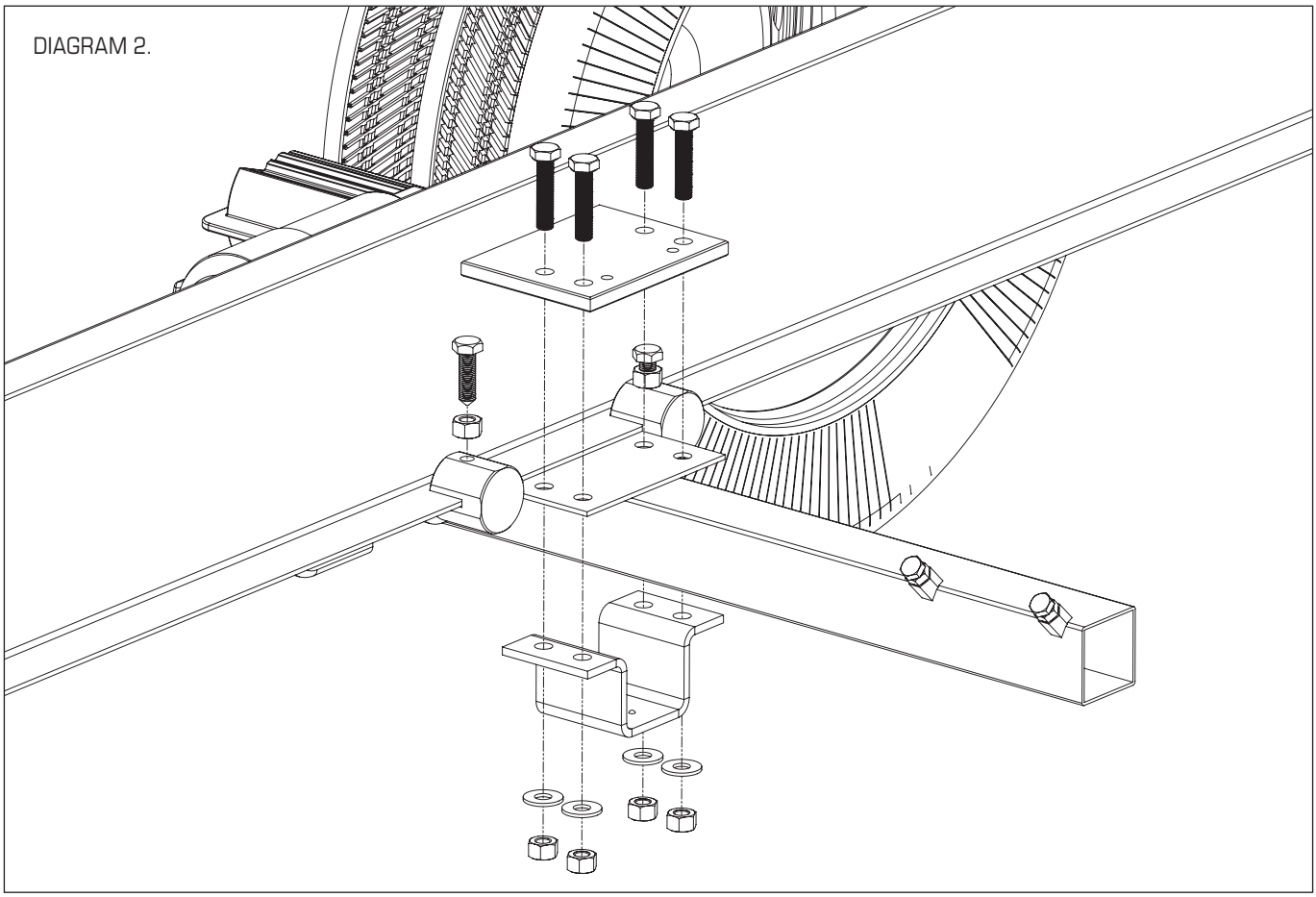


DIAGRAM 3.

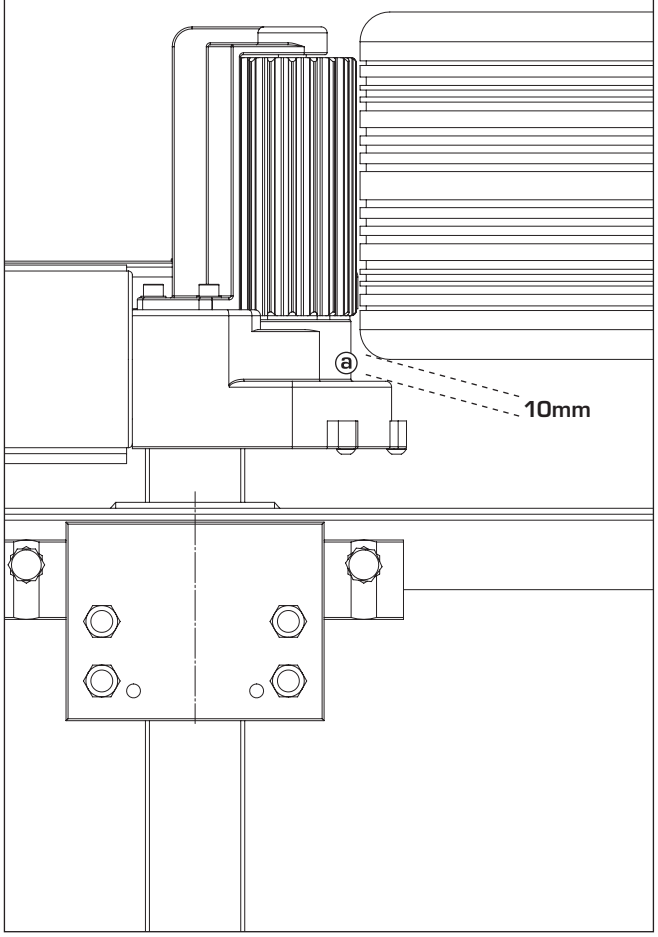
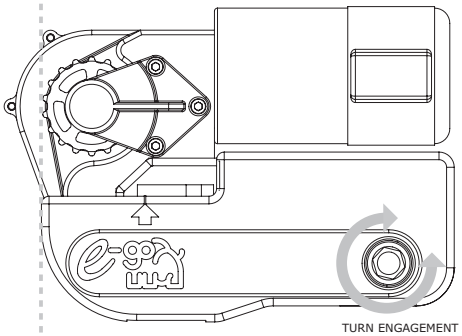


DIAGRAM 4.



CAUTION. Do not exert undue pressure on winding spindle when rollers are fully disengaged. When resistance is met – STOP WINDING. Failure to do this may result in mechanical damage.

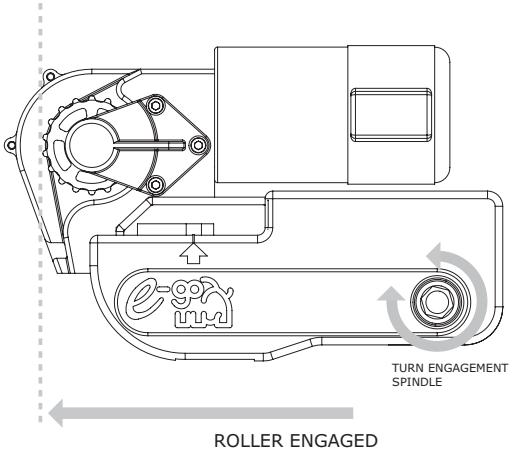


DIAGRAM 5.

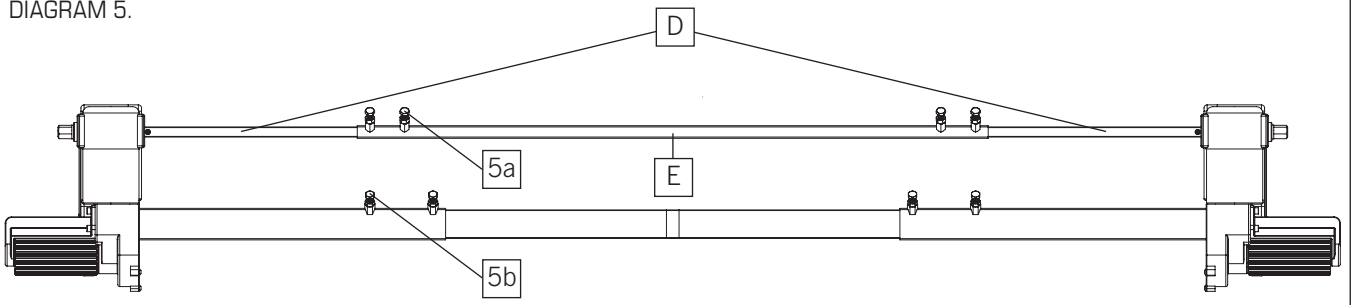
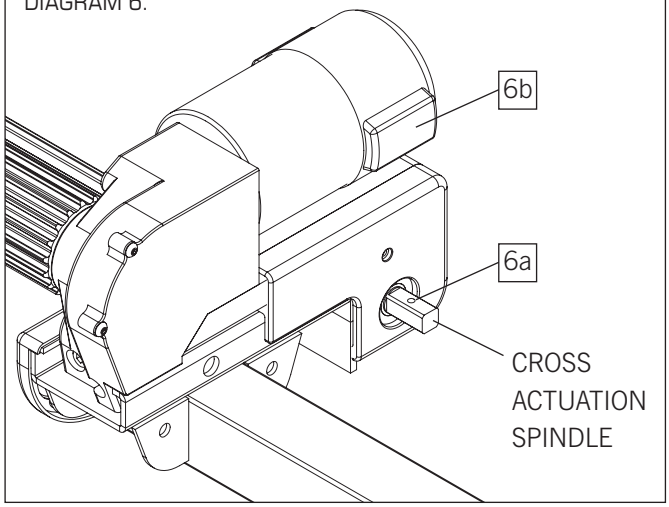


DIAGRAM 6.



The cross actuation assembly, (D & E) can now be fitted. Please refer to Diagram 5. for reference. The two end pieces (D) fit into the middle section (E) making the assembly telescopic. Offer up the assembly and fit one end onto one of the motor's cross actuation spindles (Diagram 6.) ensuring that the fixing bolt holes line up. Once this is done, secure one end using the small bolt and nylock nut that are already retained on the actuation spindle (Diagram 6a).

Fit the other end onto the opposite spindle and, again, secure with the small bolt. Centralise the middle section (E) and tighten the four bolts (Diagram 5a) to a torque setting of 12Nm (9ft lbs).

The mechanical components of the caravan mover system have now been fitted.

Installation of Electronic Components

In this section we will detail the fitting of the following electronic components (refer to Main Components – page 2):

The Central Control Unit (G)
Caravan Mover System power isolator switch (10)
Power cables from each Motor Unit to the Central Control Unit (6) & (7)
Power cables from the central control unit to the caravan's leisure battery (3) & (4)

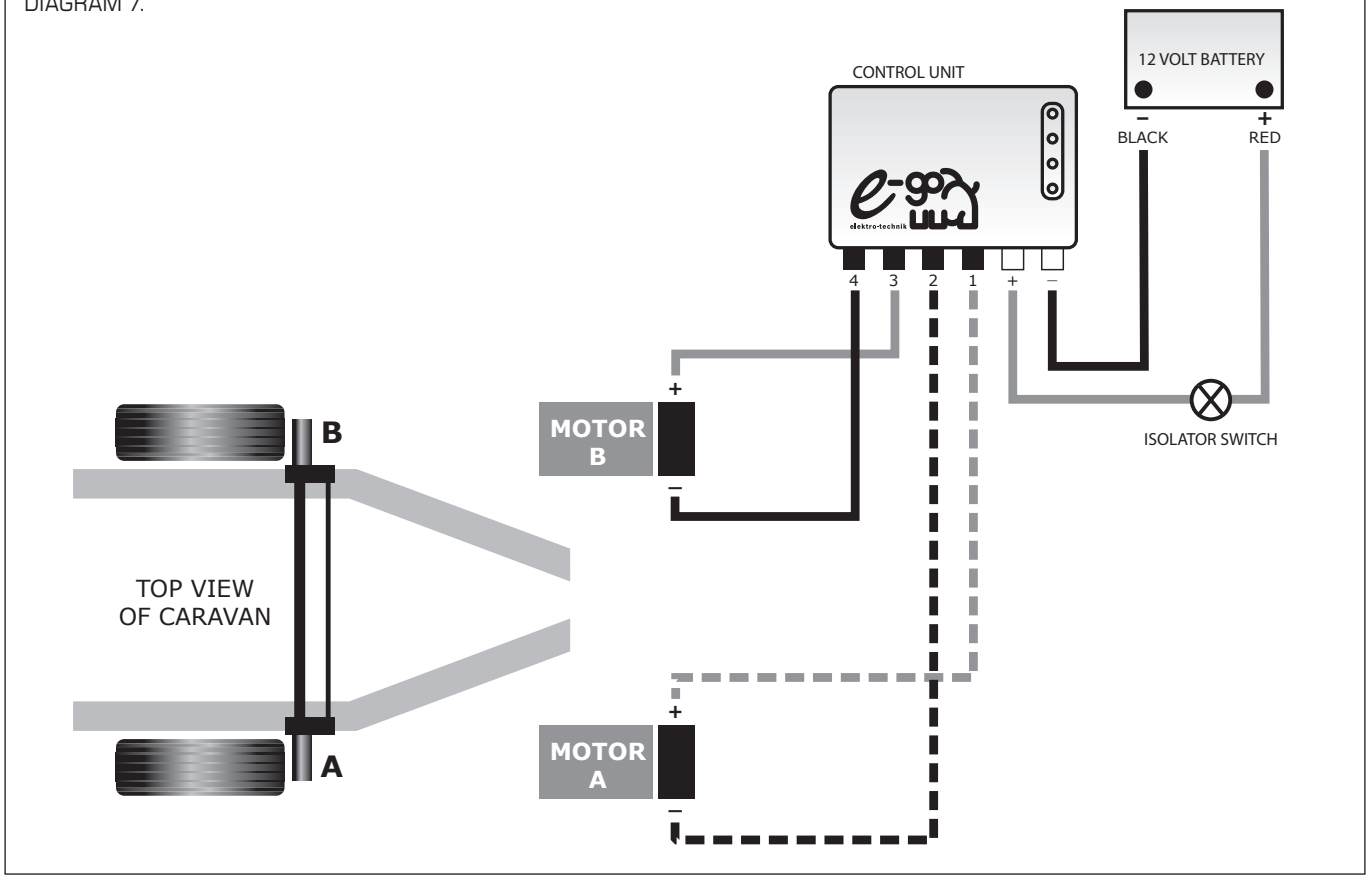
SAFETY FIRST! Disconnect the caravan's leisure battery and remove it from its compartment.

The Control Unit (G) should be situated inside the caravan, ideally close to the battery, but not closer than 40cm. An example location could be underneath one of the bench seats.

Before proceeding, please take the time to determine the optimum location to ensure safe and easy routing of the control and power cables (refer to Diagram 7 and 8).

The power isolator switch (10) will also need to be installed in-line between the control unit and the battery, so please plan where this will be located. If available, the ideal location for the isolator switch is inside the battery compartment; usually there is a space to the side of the battery near the mains power connection. Essentially, the isolator switch needs to be in a location that is easily accessible in the event that the mover needs to be switched off in case of any emergency.

DIAGRAM 7.



If you cannot install the switch in the battery compartment then please choose another appropriate position that is accessible from the exterior of the caravan but not within easy reach of children or any unauthorised person.

SAFETY FIRST! Check for cables, pipes, chassis members or any other obstruction prior to drilling the hole for the cables.

One hole, approximately 25mm in diameter, will need to be drilled through the floor of the caravan directly in front of the chosen position for the Control Unit; so please ensure that any cables or pipes are not near, above or below the hole position.

First, after determining the position of the control unit, fix the unit to the floor or interior panel of the caravan using the screws (9a) provided (the Control Unit can be installed in a horizontal or vertical position).

Drill the hole for the cables. This should be located in front of the unit at a distance of approximately 10cm to allow enough room to route the cables from the hole to each connection terminal on the Control Unit.

CORRECT ROUTING OF CABLES

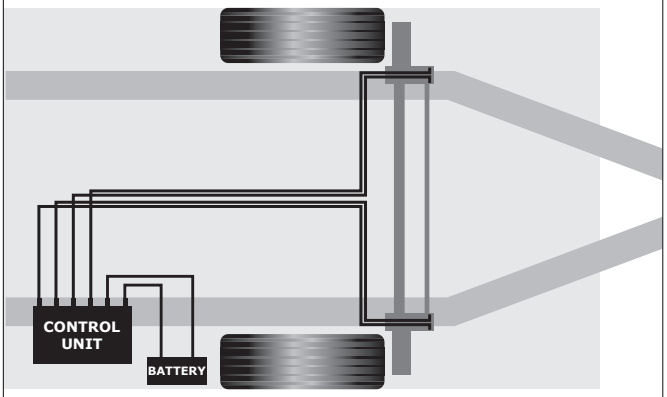


DIAGRAM 8.

Do not cut any cables yet!

You will then need to work underneath the caravan to route the cables from each motor to the Control Unit. First, attach the positive and negative motor cables (3) & (4) onto the terminals (Diagram 6b) of one motor according to the wiring diagram (7).

Route the cables from the motor through the nearest free aperture in the chassis. You will need to cut a length of the cable trunking (5) to fit around the cables as protection against any sharp edges. Fix the cables to the underside of the caravan floor using the p-clips (14) around the trunking. Allow an adequate amount of cable slack to allow for the movement of the roller when engaging onto the tyre (approx. 50mm).

Is it best to try and keep all motor cables an equal length, so it is advised that each pair of cables is routed towards the centre line of the caravan's length and then onward to the drilled hole near the Control Unit (shown in Diagram 8).

Continue to affix the cables onto the caravan's underside using the trunking where appropriate and also the smaller p-clips (14b). Once you reach the hole, push the pair of cables through. Attach the numbered cables markers onto the ends of the 2 cables (shown in wiring Diagram 7).

Repeat the procedure for the other motor and attach the appropriate numbered markers onto the ends of each cable for your reference later.

Once both sets of motor cables have been secured to the caravan's underside, you can cut the four cables to an appropriate length and fit a spade connector onto each (9d). Ensure that the numbered cable markers are still present. You will need to remove approximately 5mm of the cable shielding and fit the spade connectors using a suitable crimping tool. You must ensure good, secure connections are made on all cables.

Once the motor cable spade connectors are fitted, you should route them according to the wiring diagram, onto the terminals of the control unit. Secure the cables to the floor using the p-clips (14).

Now you need to install the power cables (6) & (7) that connect the Control Unit to the caravan's leisure battery.

First, install the battery isolator switch (10) in a suitable position not far from the battery (as described above). To do this, you will need to drill a hole 25mm diameter and use the nuts and bolts to fix the switch (the fixings come already retained on the switch).

SAFETY FIRST! Ensure that cables are connected correctly – Positive (+) Red Cable to 12V + and Negative (–) Black Cable to 12V –.

Connect the positive battery cable (6) onto the positive terminal of the Control Unit (G). Route the cable to the battery isolator switch (10), fixing the cable using p-clips. Cut the cable to an appropriate length and remove approximately 5mm and attach a ring connector (9b). Crimp the connector securely, fit onto one of the switch terminals and secure with the nut using a 14mm spanner or socket.

Fit another ring connector onto the end of the remaining cable and attach to the other switch terminal.

Now route and secure with p-clips, the remaining length of positive battery cable to the positive terminal of the leisure battery. Depending on the layout of your caravan, you may need to drill a hole in the side of the battery compartment to route the battery cables from the caravan interior into the compartment. The use of rubber grommets is advised if any sharp edges are present.

Cut the cable to an appropriate length, make sure you leave enough slack to be able to enable easy fitment and removal of the battery in the future.

Strip the cable to reveal 5mm of wire then attach and crimp a battery ring connector (9b) or (9c) of the appropriate size suitable to attach to the existing caravan battery terminal clamps. Attach the cable onto the positive caravan battery terminal clamp.

Repeat the procedure for the negative battery cable (7) and route direct to the caravan's negative battery clamp using an appropriate ring connector (9b) or (9c) on the end of the cable.

The installation of the electronic components is now complete. The next stage is to check the installation of the mover system.

Checking the Mover Installation

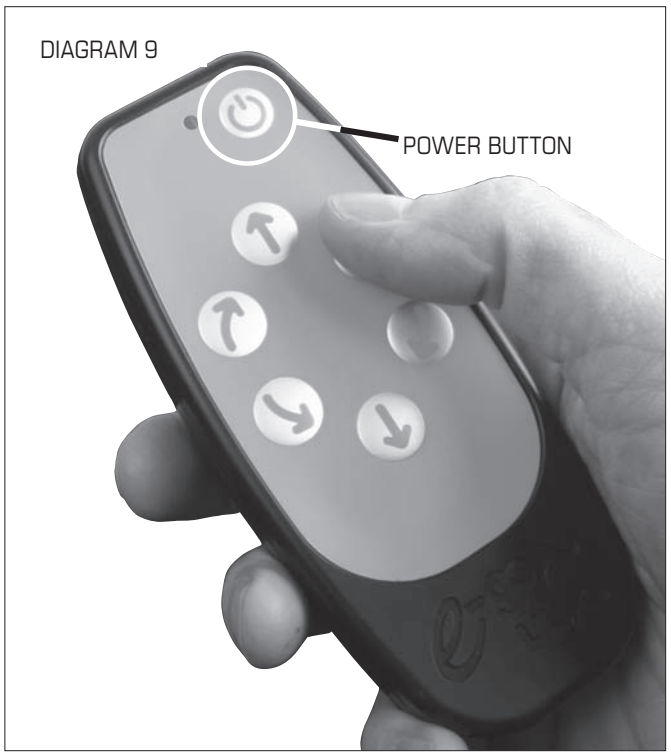
The installation of the mover system must now be checked prior to use.

Install the 3 x AAA batteries supplied into the remote control handset (F) by sliding off the handset's rear cover, ensuring the batteries are orientated for correct polarity.

Reconnect the caravan's battery clamps onto the leisure battery.

Switch on the power to the mover system by inserting and rotating the battery isolator switch key clockwise.

DIAGRAM 9



Your mover should be supplied with the remote control (F) already 'paired' or synchronised with the control unit (G). However, if this is not the case please refer to section (Electronic Control Unit Function) on pairing the remote control to the control unit.

Switch on the mover by pressing power button (refer to Diagram 9) on the remote control twice within one second. The green LED on the remote will illuminate and the green Control Unit LED will illuminate to indicate the system is operational.

Press each remote control directional button in turn to check that the rollers are rotating in accordance with the relevant directional button. For example, if you press the forward directional button, both rollers should rotate towards the caravan's tyres (if fitted in front of the axle).

Once satisfied that the remote control buttons correspond to the correct operation of the rollers, you will need to check the function of the Mover when manoeuvring your caravan.

Note: Please refer to the Troubleshooting section of this manual if you encounter any problems.

First, you will need to engage the rollers onto the caravan's tyres. Use either an appropriate power drill with the included Engagement Drill Adapter (H) or the included Universal joint Adapter (I) and the caravan's corner steady tool.

DIAGRAM 10.

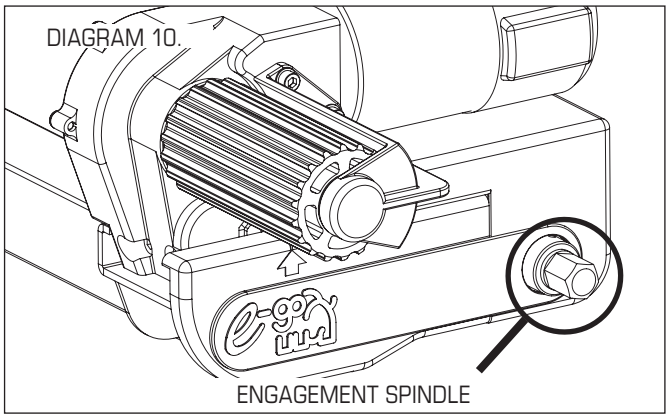
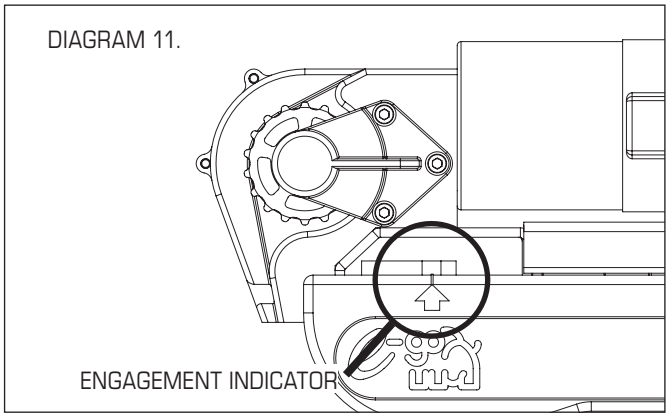


DIAGRAM 11.



Fit the engagement tool onto the Engagement Spindle (refer to Diagram 10) on either side of the mover. Depending on which side you are connected, you need to turn the spindle clockwise or anti-clockwise so that the roller moves towards the caravan's wheels (refer to Diagram 4).

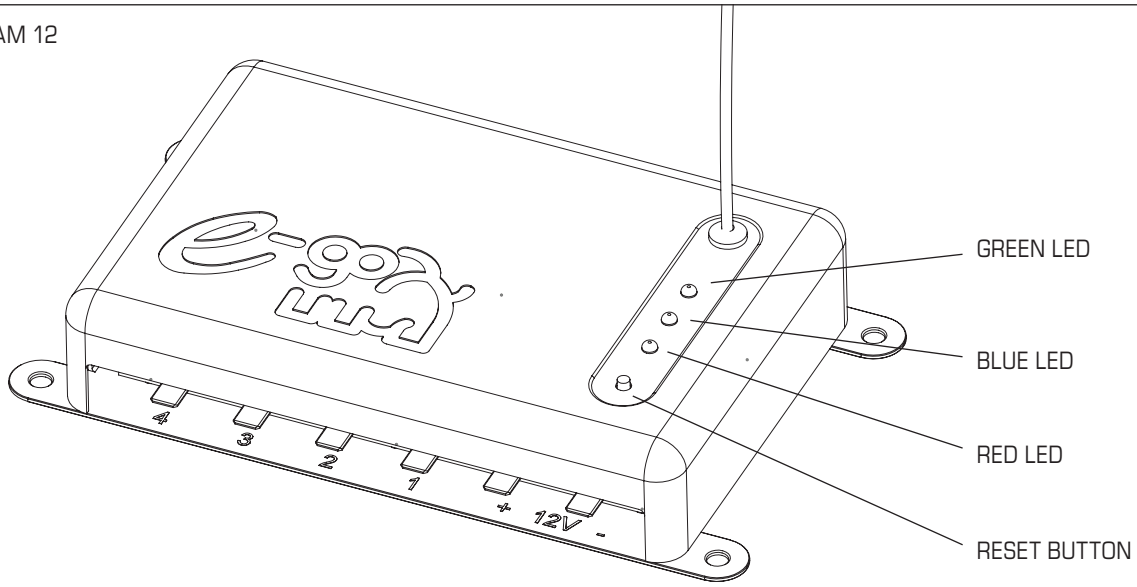
There is an indicator (Refer to Diagram 11) on the side of each motor unit with three colours. The marker on the plastic side cover needs to point to the green area, which should provide adequate grip and traction for most situations of use.

If the marker points to the red area, please refer to the troubleshooting section.

Once the marker points to the green area, you can release the caravan's handbrake.

SAFETY FIRST! Ensure that there are no persons or obstructions in the vicinity of the caravan prior to testing.
Do not over-engage the rollers – this could cause undue stress on the unit and could result in personal injury.

DIAGRAM 12



As the Remote Control has a 60 second safety time-out, it will probably be necessary to switch the mover back on by pressing the power button twice within one second. The green LED will illuminate to indicate the system is operational.

Now you can press any of the directional buttons to manoeuvre your caravan. All movements should correspond to the buttons being pressed.

The installation of the caravan mover system is now complete.

The next sections detail the operation of the mover.

Operation of the Mover

Electronic Control Unit Function

When the Control Unit (refer to Diagram 12) is connected to power, it will perform a self-test automatically. The 3 LEDs will illuminate for 0.2 seconds, and turn off, which means there is no error and the unit is functioning correctly.

When pressing a directional button on the handset, the mover will start slowly, normal speed will be reached within 2.5 seconds.

As a safety feature the Control Unit will switch off automatically if no button is pressed within 60 seconds.

The Control Unit will also turn off automatically if the mover is working constantly in one direction for longer than 3 minutes.

The control Unit has 3 LEDs and one button as follows:

Green LED – This will illuminate when receiving the signal. The LED will flash if the remote control is out of range (the maximum range is 100 metres – without obstruction).

Blue LED – This will illuminate if the temperature of the control unit is too high, or if the battery voltage is too low or too high. The Red LED will specify the error as follows:

Red LED – Voltage too low <10V: LED will flash twice slowly.
Voltage too high >15V: LED will flash fast 5 times.
Electric current is too high (≥100A): LED will constantly flash.
Temperature is too high >80C: LED is on permanently.

Reset Button – This only needs to be used when replacing a remote control handset.
Press the button, the green LED will flash for 10 seconds. Press the power button on the handset twice whilst the Control Unit's LED is still flashing. The green LED will then be on without flashing. The remote control and Control Unit are now paired. Because they are uniquely paired, the remote control cannot operate another mover system.

All error messages will reset automatically after 40 seconds. If this does not occur, reset the mover by switching off the mover via the isolator switch for at least 10 seconds and turn it on again. Then re-establish the connection with the remote control (by pressing the power button on the handset twice within 1 second).

Note: Please refer to the troubleshooting section for guidance if a problem occurs.

Wiring Connections

Please refer to Wiring Diagram 7. for reference.

In most instances the mover units should be installed in front of the axle as per the diagram with the wiring sequence as follows:

Front Axle Installation

Motor A positive (+) to Control Unit Terminal 1
Motor A negative (-) to Control Unit Terminal 2
Motor B positive (+) to Control Unit Terminal 3
Motor B negative (-) to Control Unit Terminal 4

If it is necessary to fit the mover to the rear of the axle please follow the following wiring sequence:

Rear Axle Installation

Motor A positive (+) to Control Unit Terminal 4
Motor A negative (-) to Control Unit Terminal 3
Motor B positive (+) to Control Unit Terminal 2
Motor B negative (-) to Control Unit Terminal 1

Remote Control Handset Operation

Press Power Button twice within 1 second to turn the system on; a 'beep' will sound.

Press Power Button once to turn the system off; a 'beep' will sound.

The remote control handset is powered by 3 AAA 1.5V batteries. To replace the batteries, slide off the cover on the underside of the handset and insert new batteries in correct orientation for battery polarity. Slide the cover back on until it 'clicks' into place; do not use force.

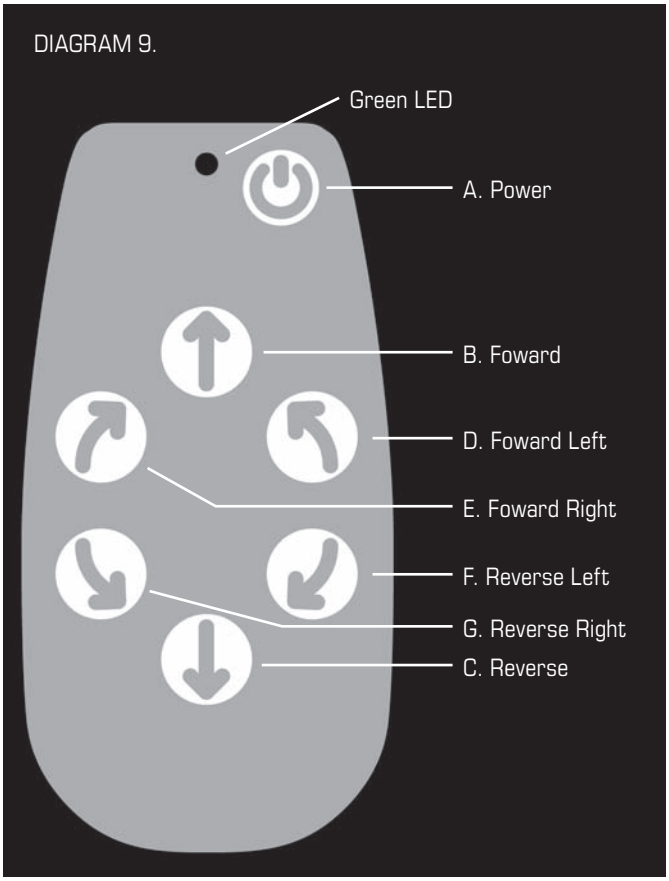
SAFE DISPOSAL: Please dispose of batteries in accordance with your local authority guidelines.

After pressing Power Button twice:

When the remote control handset is paired with control unit, the green LED is illuminated, the mover system is ready and the directional controls can be used.

If the handset has not been used for a period of more than 60 seconds, a 'beep' will sound, if any button is pressed within 7 seconds the mover system will continue to operate; if no button is pressed after this alert, the LED will turn off and the caravan mover system will shut down automatically to conserve battery power and as a safety feature.

DIAGRAM 9.



A 'beep' will sound and the LED will flash to indicate a fault of some kind such as:

The remote control handset is not paired with control unit.
There is no signal.
The Control Unit has detected a fault.

If one directional button is permanently held down for a period longer than 3 minutes, the LED will turn off to protect an overload of the motor system components.

A = Power Button: Press button twice within one second to switch the system on. Press once for off.
B = Caravan forwards: both wheels rotate in forwards direction.
C = Caravan reverse: both wheels rotate in reverse direction.
D = Caravan left forwards: right wheel rotates in forward direction.
E = Caravan right forwards: left wheel rotates in forward direction.
F = Caravan left reverse: right wheel rotates in reverse direction.
G = Caravan right reverse: left wheel rotates in reverse direction.

In addition, buttons E & F or D & G may be pressed at the same time to turn the caravan on its own axis (without moving forward or backward).

Trouble Shooting

SYMPTOM	SOLUTIONS
Motors do not function/no power.	Check all the cable connections for a secure fit.
	Check the battery connections
	Check that the isolator switch is turned on
	Check the condition of the caravan's battery
	Check that the Control Unit is not flashing an error code.
No LED illumination on remote control handset	Check the condition of the 3 x AAA batteries and replace as necessary.
No power/ no LED illumination on the Control Unit	Check caravan battery condition
	Check all the cable connections for a secure fit.
	Check that the battery cables are connected correctly: positive and negative.
	Reverse polarity can overload and damage the control unit.
Rollers are slipping on caravan's tyres	Rotate the engagement spindle to move the roller further onto the tyre.
	Note: if the marker is pointing to the red area, in order to achieve sufficient traction, then the position of each motor unit may be incorrect. Check that the disengaged position provides a distance of 20mm between the front edge of the roller and the surface of the tyre; if this has changed, the units will need to be repositioned. Check for correct tyre pressure by referring to your caravan manufacturer's handbook. If the pressure is low, the roller would need to be pushed into the tyre further than usual to gain sufficient traction, but it is always best to optimise tyre pressures.
Movement of the caravan does not correspond to the directional buttons being pressed on the handset.	Check the wiring order against the wiring diagram (7).

Care and Maintenance

The ***e-go*** caravan mover system is essentially maintenance free. General care and attention is necessary on any unit that is exposed to the elements and the unit should be washed down to clear any dirt or debris.

Ensure that there is no grit or debris in-between the roller and its support guard.

The use of a light spray lubricant can be beneficial around any of the moving parts, such as the sliding mechanism, the engagement spindle and the cross actuation bar.

The gearbox is a sealed unit and needs no maintenance.

Ensure that the control unit is not covered and that there are no loose metal objects in the vicinity that could accidentally touch the terminals.

The remote control handset is splash-proof but not waterproof. Do not immerse any of the electronic components in any liquid.

Warranty

The ***e-go*** caravan mover system is provided with a parts only warranty for a period of 2-years from the date of purchase. Any warranty claims must be directed through the place of purchase with a proof of purchase provided.

Within this two year period, the manufacturer will, at their sole discretion, replace or repair any parts that have failed if deemed to be due to a manufacturing defect. The manufacturer reserves the right to charge for any repair, or costs incurred whilst processing a claim, that is deemed to be due to customer misuse or neglect.

This warranty is not offered for any type of trade or commercial usage.

The manufacturer does not take responsibility for any consequential loss whatsoever.

Upon inspection, components that are missing when checked against the packing contents list must be reported to the place of purchase within 5 working days.

Notes